

# AW952XX Software Porting Guide

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## 1 Software Overview

Driver File	aw952xx.c, aw952xx.h
Support Device	aw9523b、aw9527
I <sup>2</sup> C Address	0x58

## 2 Software Porting

### 2.1 DTS Configuration

```
&i2c_3 {
    status = "ok";
    aw952xx_led@58 {
        compatible = "awinic,aw952xx";
        reg = <0x58>; //addr
        reset-gpio = <&tlmm 20 0>; //rst gpio
        irq-gpio = <&tlmm 72 0>; //irq gpio
//    aw952xx_power-supply = <&pm8909_l6>; //VCC
        status = "okay";
        aw952xx,single_key_enable = <0>; //enable single key function, 0 to disable
        aw952xx,matrix_key_enable = <1>; //enable matrix key function, 0 to disable
        aw952xx,led_enable = <0>; //enabel led function, 0 to disable
        aw952xx,gpio_enable = <0>; //enable gpio function, 0 to disable
        aw952xx,key{
            aw952xx,wake_up_enable = <0>; //enabel key function in suspend mode,0 to disable
            aw952xx,input_port_mask = <0x0F00>; // 0000 1111 0000 0000 Identifies the pin port for the input.
here: P1_0-P1_3
            aw952xx,output_port_mask = <0xF000>; //1111 0000 0000 0000 Identifies the pin port for the output
here: P1_4-P1_7
        };
        aw952xx,led {
            aw952xx,default_imax = <0x00>;
            led1{
                aw952xx,name = "lcd-backlight"; //cdev name
                aw952xx,idx_count = <1>; //The number of ports used
                aw952xx,idx = <0x00>; //The specific port identifier used, This is used here: P0_0
                aw952xx,default_brightness = <255>;
                aw952xx,max_brightness = <255>;
            };
            led2{
                aw952xx,name = "led2";
                aw952xx,idx_count = <1>; //The number of ports used
                aw952xx,idx = <0x01>; //The specific port identifier used, This is used here:P0_1
                aw952xx,default_brightness = <255>;
                aw952xx,max_brightness = <255>;
            };
            led3{
                aw952xx,name = "led3";
                aw952xx,idx_count = <1>;
                aw952xx,idx = <0x02>; //The specific port identifier used, This is used here:P0_2
```

```
        aw952xx,default_brightness = <255>;
        aw952xx,max_brightness = <255>;
    };
    led4{
        aw952xx,name = "led4";
        aw952xx,idx_count = <1>;
        aw952xx,idx = <0x03>; //The specific port identifier used, This is used here:P0_3
        aw952xx,default_brightness = <255>;
        aw952xx,max_brightness = <255>;
    };
};
aw952xx,gpio{
    aw952xx,gpio_mode = <1>;
    gpio1{
        aw952xx,gpio_idx = <4>; // The specific port identifier used, This is used here:P0_4
        aw952xx,gpio_dir = <1>; // The specific port work in output(1) or input(0)
        aw952xx,gpio_default_val = <0>;
    };
    gpio2{
        aw952xx,gpio_idx = <5>; // The specific port identifier used, This is used here:P0_5
        aw952xx,gpio_dir = <1>; //The specific port work in output(1) or input(0)
        aw952xx,gpio_default_val = <0>;
    };
    gpio3{
        aw952xx,gpio_idx = <6>; // The specific port identifier used, This is used here:P0_6
        aw952xx,gpio_dir = <1>; //The specific port work in output(1) or input(0)
        aw952xx,gpio_default_val = <0>;
    };
    gpio4{
        aw952xx,gpio_idx = <7>; // The specific port identifier used, This is used here:P0_7
        aw952xx,gpio_dir = <1>; //The specific port work in output(1) or input(0)
        aw952xx,gpio_default_val = <0>;
    };
};
};
};
```

In the aw952xx.dtsi file, configure the modes (single\_key\_enable, matrix\_key\_enable, led\_enable, and gpio\_enable), and you can also configure their port modes and input/output states separately. For the AW952XX demo under test, when used as a button, its input pin needs to be connected to an external pull-up resistor, defaulting to a high level. When the

button is pressed, the output will pull the input low, and the IC will generate an interrupt signal at this time.

Note: The debugging platform is pre-configured to use GPIO72 for IRQ and GPIO20 for rst.

The interrupt needs to be pulled high by default. If not configured, it needs to be configured first in the platform's dtsi. Additionally, users can determine whether the button scanning function is enabled in suspend mode by configuring the initial value of `wake_up_enable`.

When set to 1, the button function can be used normally in sleep mode; if set to 0, the button function will be disabled in sleep mode.

## 2.2 Driver Configuration

### 2.2.1 Driver Porting

Migrate all driver files from the driver package to the **drivers/input/misc/aw952xx/** directory.

### 2.2.2 Kernel Build Configuration

#### A) defconfig Build

Add ***CONFIG\_AW952XX=y*** to the **defconfig**.

#### B) Kconfig Configuration

Add the following line to the **Kconfig** file in the **drivers/input/misc/** directory:

***source "drivers/input/misc/aw952xx/Kconfig"***

### C) Makefile Configuration

Add the following line to the **Makefile** file in the **drivers/input/misc/** directory:

```
obj-$(CONFIG_AW952XX) += aw952xx/
```

## 3 Debug Interface

The node file path created by the AW952XX Driver is: `sys/bus/i2c/drivers/aw952xx/*-00xx`, where \* is the I2C bus number and xx is the I2C address.

### 3.1 reg

Node name	reg
Description	read and write all register value of aw952xx
Instructions	read register value: <code>cat reg</code> write register value: <code>echo reg_addr reg_data &gt; reg</code> (Hexadecimal operation)
Example	<code>cat reg</code> (get all the values of the register with read permission) <code>echo 0x1a 0x88 &gt; reg</code> (write the value of 0x88 to the register of 0x1a)

### 3.2 sys/class/leds/<led-name>/brightness

Node name	brightness
Description	LED mode, adjust the brightness of the LED, the range of values to write is 0-255
Instructions	<code>echo 10 &gt; brightness</code>

### 3.3 aw952xx\_gpio

Node name	aw952xx_gpio
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Description	In GPIO mode, get the status of the GPIO port
Instructions	cat aw952xx_gpio

### 3.4 imax

Node name	imax
Description	<p>Modify the maximum adjustable current value of the LED driver</p> <p>The value of imax_val is 0x00-0x03, with the following meanings:</p> <p>0x00 0-Imax</p> <p>0x01 0-3/4*Imax</p> <p>0x02 0-2/4*Imax</p> <p>0x03 0-1/4*Imax</p> <p>The typical value of Imax is 37mA</p>
Instructions	echo imax_val > imax

## Revision History

Version	Date	Description
V1.1	2021-04	AW9523B Android Driver Porting Document Initial Version
V1.2	2022-02	AW9523B Android Driver Porting Document V1.2
V1.3	2023-02	Update document template
V1.4	2024-10	Update document template Change aw9523B to aw952xx, add support for aw9527

## Declaration

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